

REMARKS

Claims 1 to 61 are pending. Claims 1, 23, 30, 50, and 55 are amended. Claims 56-61 have been added.

A substitute specification (and a marked-up version thereof) is enclosed. Support for the amendments to page 1, lines 31-32 includes original claims 1-29. Support for the amendment to page 12 can be found, for example, on page 12, lines 29-31, bridging sentence, page 13, lines 1-3. Support for the editorial amendments to page 2, line 5; page 4, lines line 5; page 6, line 16; page of the substitute specification 7, line 14; page 14, line 27; page 16, line 13; page 21, line 23; page 22, line 14; page 29, line 8; page 33, line 10; and page 34, lines 8, 19, 21, and 22; page (see marked-up version of the substitute specification).

The substitute specification also includes updates to the patent applications that have now issued as patents (see page 34).

Support for the amendments to claims 1 and 23 can be found, for example, on page 1, lines 30-33, bridging sentence, page 2, lines 1-26 of the substitute specification.

Support for the amendment to claim 30 can be found, for example, on page 6, lines 8-30, bridging sentence, page 7, lines 1-2 of the substitute specification.

Support for the amendment to claim 50 can be found, for example, on page 7, lines 6-31 of the substitute specification.

Support for new claims 56 and 58 can be found, for example, in original claims 1 and 23, respectively.

Support for the new claims 57 and 58 can be found, for example, on page 1, lines 30-33, bridging sentence, page 2, lines 1-26 of the substitute specification.

Support for new claim 60 can be found, for example, on page 6, lines 8-30, bridging sentence, page 7, lines 1-2 of the substitute specification.

Support for new claim 61 can be found, for example, on page 7, lines 6-31 of the substitute specification.

Interview Summary

The undersigned acknowledges the in-person interview granted on March 21, 2006, wherein the essence of this amendment and response was discussed.

Objections

It is said in the Office Action that the preliminary amendment filed 6/1/04 is objected to because it is alleged:

(1) applicant makes a statement to delete the page numbering located on the left side of pages 1-41, yet this amendment does not follow amendment rules (i.e. substitute pages required).

(2) applicant makes a statement to delete the page numbering located on the right side of page 42, yet no such numbering exists.

(3) although the amendment refers to pages and line numbers for the replacement paragraphs, some of the page and line numbers referred to in the preliminary amendment do not correspond to those defined in the current specification.

For example on page 2 of the preliminary amendment, applicant sets forth “replace the paragraphs that starts on line 30 with the word “The” and ends on page 2, lines 30 with the word “article” , however, the paragraph to be replaced starts on line 30 with the word “**In**” and ends on page 2, line **31** with the word “article” , however,

In addition, on page 5 of the preliminary amendment, applicant sets forth “replace the paragraph that starts on line 3 with the word “In” and ends on **page line** 31 with the word “article” , however, this statement does not define the ending page.

Further, the disclosure is objected to because of the alleged following informalities:

On each page of the specification, page numbers appear on the right side of the page.

In addition, the specification is objected to as to the other informalities defined in the preliminary amendment dated 6/1/04, which is objected to (see above).

Finally, throughout the specification, applicants refer to serial numbers, however, the status of the applications must be defined (i.e. if it is a patent, the patent number must be provided).

Appropriate correction is required.

A substitute specification excluding the claims is required pursuant to 37 CFR 1.125(a) because the numerous amendments to be made in the specification could lead to confusion and mistake during the issue and printing processes. Accordingly, the entire specification is required to be rewritten.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings

showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

A substitute specification (and a marked-up version thereof) is enclosed to address the issues identified above in the Office Action. Additional changes to the specification are also made. Support for the amendments is provided above. The substitute specification contains no new matter.

§ 112 Rejections

Claims 30-55 stand rejected under 35 USC § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

It is said that claims 30 and 50 are indefinite as to the limitation “to convert at least a portion of the glass to crystalline ceramic and provide glass-ceramic and **the abrasive particles**” because the examiner is unclear as how the abrasive particles differ from the glass ceramic. It is apparent that the glass-ceramic is the abrasive particles thus does the limitation “abrasive particles”, as define in the above limitation, mean that distinct abrasive particles, in addition to the glass ceramic, are present (i.e. abrasive particles that are not the glass-ceramic of the claims)? If so, how are they different from the glass-ceramic? It is suggested that the phrase “the abrasive particles” be canceled from the above limitation.

It is said that claim 55 is indefinite because the phrase “the **ceramic** abrasive particles” lacks antecedent basis because this was never defined before. The claim never defines that the abrasive particles are only ceramic in nature.

The other claims are indefinite because they depend on indefinite claims.

Although not agreeing amendment is necessary, to facilitate prosecution, claims 30, 50, and 55 have been amended as discussed at the March 21, 2006 interview to overcome these rejections.

§ 102/§ 103 Rejections

Claims 1-5, 7, 9, 12-14, and 19-26 stand rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Pat. No. 3,635,739 (MacDowell et al.).

To facilitate prosecution, the original independent claims 1 and 23 have been amended as discussed at the March 21, 2006 interview to more clearly distinguish the claims from '739 (MacDowell et al.).

With regard to amended independent claims 1 and 23, it is now required, in part, that the glass that is heat-treated comprises at least 40 percent by weight Al_2O_3 , based on the total weight of the glass, REO, at least one of ZrO_2 or HfO_2 , and at least one of Nb_2O_5 or Ta_2O_5 , wherein the glass contains not more than 10 percent by weight collectively As_2O_3 , B_2O_3 , GeO_2 , P_2O_5 , SiO_2 , TeO_2 , and V_2O_5 , based on the total weight of the glass. As discussed at the interview, '739 (MacDowell et al.) fails to teach or suggest amended claims 1 and 23.

Claims 2-5, 7, 9, 12-14, and 19-22 depend directly or indirectly from claim 1. Claim 1 is patentable, for example, for at least the reasons given above. Therefore, claims 2-5, 7, 9, 12-14, and 19-22 are also patentable.

Claims 24-26 depend directly or indirectly from claim 23. Claim 23 is patentable, for example, for at least the reasons given above. Therefore, claims 24-26 are also patentable.

In addition, as discussed at the March 21, 2006 interview new claims 56-59 are presented.

With regard to new independent claims 56 and 57, these claims are the same as original claims 1 and 23, respectively, except claims 56 and 57 require that Nb_2O_5 be present in an amount sufficient to increase the rate of at least one of crystalline ZrO_2 or crystalline HfO_2 formation from the glass as compared to a comparative glass-ceramic made by heat-treating, in the same manner, the same glass free of Nb_2O_5 , as opposed to the original language wherein at least one of Nb_2O_5 or Ta_2O_5 is present in an amount sufficient to increase the rate of at least one of crystalline ZrO_2 or crystalline HfO_2 formation from the glass as compared to a comparative glass-ceramic made by heat-treating, in the same manner, the same glass free of Nb_2O_5 and Ta_2O_5 . That is, while new claims 56 and 57 permit the inclusion of Ta_2O_5 , these claims require

the specified amount of Nb_2O_5 . As discussed at the interview, '739 (MacDowell et al.) fails to teach or suggest the required Nb_2O_5 .

With regard to new independent claims 58 and 59, these claims require, for example, that the glass comprises at least 35 percent by weight Al_2O_3 , based on the total weight of the glass, REO in a range from 25 to 70 percent by weight, based on the total weight of the glass, at least one of ZrO_2 or HfO_2 , and at least one of Nb_2O_5 or Ta_2O_5 , wherein the glass contains not more than 10 percent by weight collectively As_2O_3 , B_2O_3 , GeO_2 , P_2O_5 , SiO_2 , TeO_2 , and V_2O_5 , based on the total weight of the glass. As discussed at the interview, '739 (MacDowell et al.) fails to teach or suggest new claims 58 and 59.

In summary, the rejection of claims 1-5, 7, 9, 12-14, and 19-26 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Pat. No. 3,635,739 (MacDowell et al.) should be withdrawn.

§ 103 Rejections

Claims 1-55 stand rejected under 35 USC § 103(a) as being unpatentable over Rosenflanz et al. 2003/0126804 (the U.S. patent is related to WO reference (X reference) cited on search report file 1/20/05).

Notwithstanding the teachings of Rosenflanz et al. 2003/0126804, including Examples 14 and 15 therein (which as noted in the Office Action were not reported as being crystallized (i.e., converted into glass-ceramic)), and the comments provided in the Office Action, as discussed at the March 21 interview, Rosenflanz et al. 2003/0126804 does not properly suggest the instant invention, wherein each claims includes at least converting glass to glass-ceramic, wherein the glass comprises at least one of Nb_2O_5 or Ta_2O_5 present in an amount sufficient to increase the rate of at least one of crystalline ZrO_2 or crystalline HfO_2 formation from the glass as compared to a comparative glass-ceramic made by heat-treating, in the same manner, the same glass free of Nb_2O_5 and Ta_2O_5 . As discussed at the interview, the effect of the Nb_2O_5 or Ta_2O_5 to increase the rate of at least one of crystalline ZrO_2 or crystalline HfO_2 formation from the glass as compared to a comparative glass-ceramic made by heat-treating, in the same manner, the same glass free of Nb_2O_5 and Ta_2O_5 is surprising.

Claims 2-22 depend directly or indirectly from claim 1. Claim 1 is patentable for at least the reasons given above. Thus, claims 2-22 are likewise be patentable.

Claims 24-29 depend directly or indirectly from claim 23. Claim 23 is patentable for at least the reasons given above. Thus, claims 24-29 are likewise be patentable.

Claims 31-42 (and new claim 60) depend directly or indirectly from claim 30. Claim 30 is patentable for at least the reasons given above. Thus, claims 31-42 (and new claim 60) are likewise be patentable.

Claims 51-55 (and new claim 61) depend directly or indirectly from claim 50. Claim 50 is patentable for at least the reasons given above. Thus, claims 51-55 (and new claim 61) are likewise be patentable.

In summary, the rejection of claims 1-55 under 35 USC § 103(a) as being unpatentable over Rosenflanz et al. 2003/0126804 and should be withdrawn.

In view of the above, it is submitted that the application is in condition for allowance.
Reconsideration of the application is requested.

Allowance of claims 1-61, as amended, at an early date is solicited.

Respectfully submitted,

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Date

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